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well as through his permanent researches. Among those who benefited by his guidance may be mentioned the names of Brieger, Goldmann, Herter, Hürthle, Kast, C. Th. Möerner, Preusse, Röhmman, Schotten v. Udránszky, N. Wedenski. One who came into personal contact with the man could not fail to admire his untiring devotion to science, and to feel grateful for the inspiration derived from him.

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ALFRED TRESCA.

THE session of November 27, 1896, of the '*Société d'Encouragement pour l'Industrie nationale*,' under the presidency of M. Mascart, was devoted mainly to ceremonies in memory of the late M. Alfred Tresca, recently deceased. The discourse pronounced by M. Haton de la Goupillière was the main feature of the evening programme.

Monsieur A. Tresca was the son of the distinguished investigator, Henri Tresca, who was the successor of General Morin as the head of the *Conservatoire des Arts et Métiers*, and who followed and improved upon the methods of the latter in the prosecution of researches of importance in the field of applied science, and especially in the investigation of the characteristics of the materials of construction and of the most important classes of prime movers and other machines. The younger Tresca followed in the same path and gave his life to similarly valuable work. The three men have lead rather than followed in all developments in their department of work during the century. The work of Morin on the properties of the materials of engineering and his extensive introduction, in original ways, of graphical methods of illustration, the extensive study by the elder Tresca of the heat-motors, and the researches of the younger Tresca in applied physics and engineering, have been the principal contributions of the

Conservatoire, for many years past, to their department of science. It is an interesting case of 'intellectual heredity,' as the writer has called it. A personal acquaintance, slight, but quite sufficient to confirm the conclusions here reached, impressed the writer also with the fact that the influence of each upon his successor, in this respect, was deep and most effective of result. The three men, talented, industrious and persistent, by similar methods accomplished similarly useful work.

As M. Haton says: "Inheritor of a name illustrious in science and honored also for services rendered our society, he has firmly upheld its prestige. Trained in the school of his father, Henri Tresca, he learned the traditions of industrial science, that difficult science, and, at the same time, traditions of honor and of labor to which he was always faithful." He was always inclined to avoid public notice, "but his colleagues, his students, unanimously render just tribute both to the extent of his work and to its value in instruction." The address closes with an affectionate and graceful tribute of esteem and admiration, of grief and of eulogy.

R. H. T.

CURRENT NOTES ON ANTHROPOLOGY.

ANCIENT MAYAN HISTORY.

A YUCATECAN author, Don Juan Francisco Molina Solis, has recently written a meritorious history of Yucatan (*Historia del Descubrimiento y Conquista de Yucatán*, pp. 911. Merida, 1896). By way of introduction it has a sketch of the ancient history of the peninsula, covering sixty pages.

This discusses the early immigrations, the foundation of the great cities, the establishment of the confederation which for some generations appears to have controlled the peninsula and allowed a peaceful development of its culture, and its unfortunate violent dissolution leading to the destruction of the former mart of Chichen Itzá

and the capital, Mayapan. This breakdown took place in the first half of the fifteenth century, probably about 1420.

The author presents the surviving fragments of this story in clear and attractive language, basing his statements on the the best authorities and some unpublished documents. His work as a whole is of high character, and will take a worthy rank in the historical literature of Spanish America.

PRIMITIVE DRILLS AND DRILLING.

To bore a hole seems a simple affair, but it took man a long time to learn how to do it. Mr. J. D. McGuire, in the *Report of the United States National Museum for 1894* (just issued), devotes a hundred and twenty-five pages to the subject. He claims, indeed, in his opening sentence that "The earliest remains of man are found associated with implements of his manufacture in which holes have been artificially perforated." This is incorrect, as the remains of the Chellean period are not perforated, and he himself offers no evidence to that effect. Nor does he give the right explanation for the 'batons of command' of the cave period. They are arrow-straighteners and are still used by the Eskimo.

These are small matters. The article in all its leading features is clear, profound and convincing. He surveys all the forms of drills and hole-making implements of primitive times—pins, bodkins, needles, awls, etc.—and illustrates how they were used and for what purpose. Fire-drills are abundantly represented, and the theory that the Egyptian *Sam* is a drill is ably defended. Numerous cuts render the text easily comprehended, where mechanical devices are discussed.

THE STATE AND ITS SOIL.

PROF. FREDERICK RATZEL is one of the best known students of the relations of earth to man. His prize essay, 'Der Staat

und sein Boden, geographisch betrachtet' (Leipzig, 1896, pp. 127), is a careful discussion of the influence which the soil and its accessories bear upon the character and development of the inhabitants. It considers the state as a 'territorial organism,' explains the connection between the natural and political areas, traces the development of this connection, and maintains the nigh inseparable association of the two.

Prof. Ratzel is always a clear, agreeable writer. His learning is adequate to his subject. To many readers, however, this and his other works will seem to be a little arid and incomplete, from the absence of warmth of touch, of psychical sympathy, or, perhaps, want of consideration for the predominance of the will and the emotions in the affairs and the evolution of mankind.

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SCIENTIFIC NOTES AND NEWS.

THE DAVY-FARADAY RESEARCH LABORATORY.

THE Davy-Faraday Research Laboratory, which we have already described, was opened by the Prince of Wales on December 21st. The laboratory, which Dr. Ludwig Mond has presented to the Royal Institution, has cost for its building, equipment and endowment about \$500,000. The laboratory is to be devoted to research work in physics and chemistry, and Lord Rayleigh and Prof. Dewar have consented to undertake the directorship. Dr. Mond made an address in the course of which, according to the report in the *London Times*, he said that persons of either sex or any nationality would be welcome within its walls who could satisfy the laboratory committee that they were fully qualified to undertake original scientific research in pure and physical chemistry, and preference would naturally be given to those who had already published original work. If this country had distinguished itself in one way more than another in that glorious rivalry with other nations for extending our knowledge of natural phenomena and our power over the forces of nature it had been by the large num-